

MATERIAL FOR THE FLORA OF MAHABALESHWAR—8

P. V. BOLE AND M. R. ALMEIDA

[Continued from Vol. 83(3): 602]

POACEAE (= GRAMINAE)

(All keys have been adopted from N. L. Bor, Grasses of Burma, Ceylon, India and Pakistan, 1960)

1. Shrubs or trees with woody, often tall, persistent culms; leaflets with a petiole like base which is articulated with the sheath 2
2. Pericarp thin, adnate to the seed 3
 3. Filaments free *Bambusa*
 3. Filaments adnate or connate 4
 4. Stamens 3 *Arundinaria*
 4. Stamens 6 *Oxytenanthera*
2. Pericarp fleshy or crustaceous; seeds free *Dendrocalamus*
1. Annual or perennial herbs; leaf-blade not articulated with the sheath 5
5. Spikelets 2-flowered, falling entire at maturity, usually with the upper floret hermaphrodite and the lower male or barren and if the latter, then often reduced to the lemma or rarely the lemma entirely absent 6
6. Spikelets all hermaphrodite, or with male or barren and hermaphrodite spikelets mixed in the same inflorescence and so arranged that a male or barren spikelet, or if unisexual then the lemma of the fertile floret indurated 7
7. Spikelets often paired with one sessile and other pedicelled, rarely solitary, all alike; glumes as long as the spikelet and enclosing the florets, more or less rigid and firmer than the lemmas, which are both hyaline or membranaceous; upper lemma usually awned 8
8. Spikelets solitary *Dimeria*
8. Spikelets in pairs or in threes 9
 9. Spikelets in each pair similar 10
 10. Spikelets in simple racemes *Eulalia*
 10. Spikelets in panicles or in compound racemes 11
 11. Spikelets unawned *Saccharum*
 11. Spikelets awned *Spodiopogon*
 9. Spikelets in each pair dissimilar 12
12. Joints of the rachis and pedicel of pedicelled spikelet swollen or much reduced, 3-angled, rounded or flattened 13
13. Sessile spikelet with a male and hermaphrodite floret; upper lemma awned 14
 14. Racemes many noded, not covered in sheath 15
 15. Raceme solitary *Sehima* (p.p.)
 15. Racemes two to many *Ischaemum*
 14. Raceme one noded, enclosed in a sheath *Apluda*
13. Sessile spikelets with only hermaphrodite floret or occasionally a male floret below, upper lemma unawned 16
16. Sessile spikelet spherical *Hackelochloa*
16. Sessile spikelets not spherical 17

17. Sessile spikelet winged; glumes perforated or sculptured ... *Manisuri's*
17. Sessile spikelet not winged; glume not perforated or sculptured *Ophiuros*
12. Joints of the rachis and pedicels narrow, seldom thickened upwards, occasionally with a translucent groove; sessile spikelet usually awned 18
18. Inflorescence a terminal simple raceme *Sehima* (p.p.)
18. Inflorescence a panicle or compound racemes 19
19. Spikelets in racemes which are not interrupted by spathes 20
20. Lower glume tuberculate; spikelets in whorls *Vetiveria*
20. Lower glume not tuberculate; spikelets not in whorls *Chrysopogon*
19. Spikelets in panicles of racemes which are interrupted by spathes, or espathate racemes digitate 21
21. Upper lemma of the sessile spikelet with a basal awn *Arthraxon*
21. Upper lemma of the sessile spikelet with awn from the tip or from the cleft or reduced to the hyaline base of the awn 22
22. Awn glabrous 23
23. Racemes surrounded at the base by an involucre of spikelets 24
24. Involucral spikelets pedicellate, deciduous. *Iseilema*
24. Involucral spikelets sessile, not deciduous. *Themeda*
23. Racemes without an involucre 25
25. Racemes straight or slightly curved; lower glume of sessile spikelets hairy *Pseudodichanthium*
25. Racemes markedly curved; lower glume of sessile spikelets glabrous *Pseudodichanthium*
22. Awn hairy 26
26. Upper lemma of the sessile spikelets not cleft 27
27. Spikelets at the tips of the capillary branches *Capillipedium*
27. Spikelets not at the tip of the capillary branches 28
28. Joints and pedicels with a translucent longitudinal furrow *Bothriochloa*
28. Joints and pedicels not with translucent furrow 29
29. All pairs of spikelets heterogamous; upper lemma of the sessile spikelet bifid. *Pseudosorghum*
29. Lower 1-3 spikelets homogamous; upper lemma of the sessile spikelet reduced to the translucent base of the awn 30
30. Lower 1-3 spikelets homomorphous *Indochloa*
30. All spikelets alike *Dichanthium*
26. Upper lemma of the sessile spikelet 2-lobed or two cleft *Cymbopogon*
7. Spikelets solitary or paired, similar, the lower glume is smaller than the upper or rarely suppressed; upper lemma usually awnless 31
31. Spikelets mucronate or awned *Rhynchelytrum*
31. Spikelets unawned 32
32. Spikelets falling singly, not subtended by bristles (or if so, then the bristles persisting after the spikelets have fallen) 33
33. Spikelets arranged in more or less open panicles or with the panicles contracted and spike-like 34
34. Bristles subtended or replaced by one to many bristles like branchlets which remain after the spikelets have fallen *Setaria* (p.p.)
34. Spikelets not subtended by bristle-like branches 35
35. Spikelets usually arranged in cylindrical spike-like panicles; upper glume inflated or not *Sacciolepis*

35. Spikelets arranged in open or contracted panicles	36
36. Spikelets not or only slightly gibbose	<i>Panicum</i>
36. Spikelets distinctly gibbose and laterally compressed	<i>Cyrtococcum</i>
33. Spikelets arranged in one sided spikes or spike-like racemes, digitate or scattered	37
37. Lemma of the upper floret thinly cartilaginous, usually with flat hyaline margin	<i>Digitaria</i>
37. Lemma of the upper floret more or less crustaceous or coriaceous, usually with narrow inrolled margins	38
38. Spikelets adaxial	<i>Brachiaria</i>
38. Spikelets abaxial	39
39. Lower glume usually absent; spikelets plano-convex	<i>Paspalum</i>
39. Lower glume present	40
40. Leaf-blade linear; racemes dense; culms erect or suberect	<i>Echinochloa</i>
40. Leaf-blades lanceolate or ovate; racemes loose or moderately dense; culms creeping and ascending	<i>Oplismenus</i>
32. Spikelets with an involucre of bristles or subtended by a solitary bristle and falling with or without the bristles at maturity	41
41. Upper lemma smooth; bristles caducous	<i>Pennisetum</i>
41. Upper lemma transversely rugose; bristles persistent	<i>Setaria</i> (p.p.)
6. Male and female spikelets in separate inflorescence or in different parts of the same inflorescence and of different appearance; lemmas hyaline or membranaceous and thinner than the glumes ...	42
42. Female spikelets not enclosed in a false involucreal sheath	43
43. Female spikelets not crowded; axis thin	43A
43A. Lower glume of female spikelet 3-lobed, central lobe larger	<i>Trilobachne</i>
43A. Lower glume of female spikelet not 3-lobed, central lobe not larger ..	<i>Chionachne</i>
43. Female spikelets in crowded longitudinal rows on a very thin axis	<i>Zea</i>
42. Female spikelets completely enclosed in a false involucreal sheath	<i>Coix</i>
5. Spikelets one to many flowered, breaking at maturity above the more or less persistent glumes, or if falling entire then not two flowered, with lower floret male or barren and the upper floret hermaphrodite	44
44. Spikelets usually with two or more fertile florets (if with one fertile floret then sterile reduced floret above it)	45
45. Glumes usually as long as or longer than the lowest floret	<i>Avena</i>
45. Glumes usually shorter than the lowest floret	46
46. Spikelets in terminal, solitary secund spike	<i>Tripogon</i>
46. Spikelets not in solitary spikes	47
47. Inflorescence of panicles	48
48. Spikelets in digitate or subdigitate panicles	<i>Eleusine</i>
48. Spikelets in open, contracted or spike-like panicles	49
49. Stamens 2; ligule membranaceous	<i>Eragrostis</i>
49. Stamens 3; ligule ciliate	<i>Chloris</i> (p.p.)
47. Inflorescence of racemes or panicles of racemes, the spikelets secund	50
50. Imperfect florets absent	<i>Cynodon</i>
50. Imperfect florets present	<i>Chloris</i> (p.p.)
44. Spikelet with one fertile floret	51
51. Glumes minute or suppressed; fertile lemmas and paleas similar	<i>Oryza</i>
51. Glumes developed; fertile lemmas and paleas dissimilar	52
52. Spikelets with 3-florets	<i>Phalaris</i>
52. Spikelets with 1-2 florets	53
53. Spikelets with 2-florets	54
54. Lower floret without palea	<i>Thysanolaena</i>
54. Lower floret with palea	55
55. Glumes equal in size	56

- 56. Upper lemma becoming indurated; glumes finally deciduous ... *Isachne*
- 56. Upper lemma remaining membranaceous; glumes persistent .. *Coelachne*
- 55. Glumes unequal in size 57
- 57. Lemma of the upper floret bearded on the dorsal surface *Jansenella*
- 57. Lemma of the upper floret scabrid *Arundinella*
- 53. Spikelets with one fertile floret 58
- 58. Base of the glume bearded *Garnotia*
- 58. Base of the glume not bearded 59
- 59. Spikelets solitary at each node of the spike axis *Triticum*
- 59. Spikelets more than one at each node of the spike axis *Hordeum*

Apluda Linn.

1. ***Apluda mutica*** Linn. Sp. Pl. 82, 1753; Bor, Grasses, Burma, Ceylon, India & Pakistan, 93, 1960.

A variable monsoon species found in semi-shaded places and along hedges, where it sometimes assumes a climbing habit.

A. aristata Linn. Cent. Pl. 2: 71, 1756; Birdwood. 31.

DISTRIBUTION: Lingmala, Fitzgerald Ghat, Chinaman's falls.

A. varia var. *aristata* Hack. in DC. Mon. Phan. 6: 196, 1889; Blatter & McCann, Bombay Grasses 29, t. 20, 1934.

FLOWERS: October-December.

A. varia Hack. Mon. Andropog. in DC. Mon. 6: 196, 1889; Cooke, 2: 956 (3:474).

VERN. NAMES: Bangrat, Ghagra.

Arthraxon P. Beauv.

- 1. Spikelets long awned; awn 15-25 cm long *A. jubatus*
- 1. Spikelets short awned, less than 2.5 cm long 2
- 2. Lower glume of sessile spikelet densely villous; keels with narrow densely ciliate wings *A. villosus*
- 2. Lower glume of sessile spikelets at most puberulous 3
- 3. Spikelets laterally compressed; lower glume of sessile spikelets not keeled 4
- 4. Pedicelled spikelets at least in the upper part of the raceme developed *A. lancifolius*
- 4. Pedicelled spikelets not developed 5
- 5. Stamens 2 *A. hispidus*
- 5. Stamens 3 6
- 6. Pedicels absent or microscopic *A. inermis*
- 6. Pedicels upto 2 mm. long, slender *A. nudus*
- 3. Spikelets not laterally compressed 7
- 7. Keels of the upper glume with penicillate tubercles upwards *A. meeboldii*
- 7. Keels of the upper glume without penicillate tubercles 8
- 8. Root-stock and sheath not tomentose *A. echinatus*
- 8. Root-stock and sheath covered with silky cataphylls *A. lanceolatus*

1. ***Arthraxon echinatus*** (Nees) Hochst. in Flora, 39: 188, 1856; Birdwood, 30; Bor 99.

This species mentioned here on authority of Birdwood. We have not seen authentic specimens of this species from Mahabaleshwar.

Bathratherum echinatum Nees, in Edinb. New Phil. J. 18: 181 1835.

Arthraxon spathaceus Hook. f. Fl. Brit. India. 7: 145, 1896.

2. ***Arthraxon hispidus*** (Thunb.) Makino, in Bot. Mag. Tokyo, 26: 214, 1912; Bor, 99.

Phalaris hispida Thunb. Fl. Japan, 44, 1784.

A. ciliaris Beauv. Agros. 111, t. 11, f. 6, 1812; Cooke 2: 970 (3: 489).

A common grass on embankments and on old walls.

FLOWERS: October.

3. **Arthraxon inermis** Hook. f., in Fl. Brit. India, 7: 145, 1896; Cooke, Fl. Bombay 2: 968 (3: 487); Blatter & McCann. 74, t. 45; Puri & Mahajan. 135; Bor, 100.

A quite common grass in semi-shaded forest areas.

FLOWERS: October.

VERN. NAME: Vanguarin (T. Cooke).

4. **Arthraxon jubatus** Hack. in DC., Monogr. Phan. 6: 358, 1889; Cooke: 2: 970 (3: 489); Blatter & McCann, 79, t. 50; Bor, 100.

This species is very common along water courses and by the sides of water-falls, all over Fitzgerald ghat. It is one of the prominent species with long curved awns.

FLOWERS: October.

5. **Arthraxon lanceolatus** (Roxb.) Hochst. in Flora 39: 188, 1856; Birdwood, 30, Cooke, 2: 968 (3: 487); Bor 100.

Andropogon lanceolatus Roxb. Fl. Ind. 1: 262, 1820.

A tall species reaching upto 3 ft in height. We have not seen this grass in Mahabaleshwar or in any of the herbaria visited. It is included here on the authority of Birdwood.

FLOWERS: October.

VERN. NAMES: Harjala, Govinder.

6. **Arthraxon lancifolius** (Trin.) Hochst. in Flora 39: 188, 1856; Blatter & McCann, 77, t. 48; Bor, 100.

Bathratherum molle Nees et Arn. in Edinb. New Phil, J. 18: 181, 1835.

Andropogon lancifolius Trin. in Mem. Acad. Sci. Petersb. Ser. 6, 2, 271, 1832.

A. molle Balf. in Trans. Roy. Soc. Edinb. 31: 315, 1888; Birdwood, 30.

Very common species found on old walls, eroded surfaces and on waste lands.

We have not seen a specimen belonging to this species in any herbaria. Included here on the authority of Birdwood.

FLOWERS: September.

7. **Arthraxon meeboldii** Stapf in Kew Bull. 449, 1908; Cooke, 2: 969 (3: 488); Blatter & McCann, 76, t. 47; Puri & Mahajan, 136; Bor, 101.

A very common and abundant grass on higher elevations, (600-1500 m.).

FLOWERS: September.

8. **Arthraxon nudus** (Steud.) Hochst. in Flora 39: 188, 1856; Bor, 101.

Bathratherum nudum Nees ex Steud., Syn. Pl. Glum. 1: 383, 1854.

A rare grass along margins of forest in partially shaded places.

DISTRIBUTION: Chinaman's falls, Lodwick point.

FLOWERS: September-October.

9. **Arthraxon villosus** C.E.C. Fisher, in Kew Bull. 1933; 350, 1933; Bor, 103.

Rare grass at Lodwick point, known from a single collection from Mahabaleshwar.

FLOWERS: October.

Arundinaria Michx.

1. **Arundinaria wightiana** Nees in Linnaea 9: 482, 1834; Lisboa, 224.

This species is reported here on authority of Lisboa.

VERN. NAME: Chivari.

Arundinella Raddi

FLOWERS: October.

1. Upper floral glume with 3 awns 2
2. Inflorescence densely spicate *A. spicata*
2. Inflorescence not spicate, either paniculate or racemose. 3
3. Upper lemma with 2 setae, one on either side of the awn. *A. setosa*
3. Upper lemma without setae 4
4. Spikelets less than 2 mm long; leaf-blades elliptic-acuminate *A. pumila*
4. Spikelets over 2 mm long; leaf-blades not elliptic-acuminate 5
5. Spikelets glabrous or with a few short hairs on the keels of the glumes 6
6. Perennial grasses .. *A. nepalensis*
6. Annual grasses *A. metzii*
5. Spikelets very bristly from tuberculate base hairs on the nerves of the glumes and/or on the interspaces or at least the bases of the bristles remaining 7
7. Panicles very effuse and drooping; glumes unequal *A. metzii*
7. Panicles usually compact; rather effuse then glumes more or less equal *A. ciliata*
1. Upper floral glume awnless *A. leptochloa*

1. *Arundinella ciliata* (Roxb.) Nees ex Miq. in Vesh. Konink. Nederl. Inst. 3(4): 30, 1851; Puri & Mahajan, 136; Bor. 421.

Holcus ciliatus Roxb. Fl. Ind. 1: 321, 1820.

We have not seen this species from Mahabaleshwar. Blatter & McCann have not reported it in Bombay Grasses from Mahabaleshwar. We include it here on authority of Puri & Mahajan.

2. *Arundinella leptochloa* (Nees ex Steud.) Hook. f. Fl. Brit. Ind. 7: 76, 1896; Bor, 423.

Panicum leptochloa Nees ex Steud. Syn. Pl. Glum. 1: 62, 1854.

Arundinella gigantea Dalz. in Dalz. & Gibs. Bombay Fl. 293, 1861; Cooke, 2: 1005 (3: 525).

Common grass along the margins of the forests. Very variable species.

3. *Arundinella metzii* Hochst. ex Miq. in Verh. Konink. Noderl. Inst. 3(4) 31, 1851; Cooke, 2: 1003 (3 523); Bor, 423.

A. lawii Hook. f. in Trin. Hand. Fl. Ceylon 5: 180, 1900; Cooke, 2: 1003 (3: 523).

Quite common species on embankments along forest paths and on road-sides.

FLOWERS: October-November.

4. *Arundinella nepalensis* Trin. Gram. Panic. 62, 1826; Bor, 423.

A. brasiliensis Hook. f. in FBI 7: 73, 1896 (non Raddi 1823); Cooke 2: 1003 (3: 524); Puri & Mahajan, 136.

A. hispida Blatter & McCann, Bombay Grasses, 195, 1934 (non O. Kuntze, 1891); Puri & Mahajan, 136.

A variable grass usually found along the sides and in beds of streams and rivers.

FLOWERS: October-November.

5. *Arundinella pumila* (Hochst.) Steud. Syn. Pl. Glum. 1: 114, 1854; Cooke, 652; Bor 423.

A. tenella Nees ex Steud. Syn. Pl. Glum. 1: 115, 1854; Dalz. & Gibs. 292; Cooke 2: 1001 (3: 522); Blatter & McCann, 193, t. 127; Puri & Mahajan, 136.

Acratherum pumilum Hochst. ex A. Rich., Tent. Fl. Abyss. 2: 414, t. 100, 1851.

Common monsoon grass along the forest borders and in semi-shaded forests. Usually occurs on old walls or on rocks.

DISTRIBUTION: Lingmala, Chinaman's point, Lodwick point.

FLOWERS: September-November.

6. *Arundinella setosa* Trin. Gram. Panic. 63, 1826; Bor, 424-5.

A. stricta Hook. Kew Journ. Bot. 2: 102, 1850; Dalz. & Gibs. 293; Cooke, 1001 (3: 521); Birdwood, 30.

This species is reported on authority of Birdwood and Cooke. We have not seen a specimen of this species from Mahabaleshwar; not reported by Blatter & McCann also.

VERN. NAME: Kotir (Turdia?).

7. **Arundinella spicata** Dalz. in Dalz. & Gibs. Bombay Fl. 293, 1861; Cooke, 652 & 2: 1004 (3: 525); Birdwood, 30; Puri & Mahajan, 136; Bor, 425.

A common and abundant grass in latter part of monsoon, in open grass-lands. In appearance it very much resembles *Setaria* spp.

DISTRIBUTION: Yenna Banks, Lodwick point.

FLOWERS: October-November.

VERN. NAMES: Benel, Kotir.

Avena Linn.

1. **Avena sativa** Linn. Sp. Pl. 79, 1753; Birdwood, 31; Cooke, 2: 1051 (3: 574); Bor, 434.

We have not seen reliable specimen from Mahabaleshwar. It is included here on the authority of Birdwood.

VERN. NAME: Jao.

Bambusa Schreb.

1. **Bambusa arundinacea** Willd. Sp. Pl. 2: 245, 1799; Cooke, 2: 1046 (3: 569); Birdwood, 31; Holttum, Taxon 5: 67, 1956.

Bambusa bambos (Linn.) Voss. in Vilm. Blumeng. 1: 189, 1896.

Bambusa arundo Klein et Nees, in Linnaea 9: 471, 1834; Dalz. & Gibs. 299; Birdwood, 31.

Arundo bambos Linn. Sp. Pl. 81, 1753; (non conf. see Holtt. Taxon 5: 67, 1956).

Common tree grass in ghat area and at Lingmala.

VERN. NAME: Kalak.

2. **Bambusa vulgaris** Schrad. in Wendl. Collect. 2: 26, t. 47, 1810; Cooke, 2: 1047 (3: 57); Birdwood, 31.

Common bamboo cultivated in private compounds.

Bothriochloa O. Kuntze

1. Lower racemes longer than the rhachis.....

..... *B. concanensis*

1. Lower racemes shorter than the rhachis

..... *B. odorata*

1. **Bothriochloa concanensis** (Hook. f.) Henrard, in Blumea 3: 457, 1940; Bor, 106.

Andropogon concanensis Hook. f. in FBI 174, 1896; Cooke, 2: 980 (3: 499).

Amphilophis concanensis (Hook. f.) Blatter & McCann in Journ. Bombay nat. Hist. Soc. 32: 422, 1928.

Occasional in wet ground, water logged fields and along water courses.

FLOWERS: November.

2. **Bothriochloa odorata** (Lisboa) A. Camus, Ann. Soc. Linn. Lyon 1930, n.s. 76: 165, 1931; Bor, 109.

Andropogon odoratus Donna Lisboa, Journ. Bombay nat. Hist. Soc. 4: 123, 1889; Cooke, 2: 981 (3: 500).

Rare species with aromatic oil. It is reported here on the authority of Lisboa. We have not seen any specimen from Mahabaleshwar.

Brachiaria Griseb.

1. Spikelets less than 2 mm long; panicles not linear; lower glume upto $\frac{1}{2}$ as long as spikelet

..... *B. reptans*

1. Spikelets more than 3 mm long; panicles linear; lower glume a minute (0.3 mm) scale

..... *B. cruciforme*

1. **Brachiaria cruciforme** (J. E. Sm.) Griseb. in Ledeb., Fl. Ross. 4: 469, 1853; Bor, 283.

Panicum cruciforme J. E. Sm. in Siebth. et J.E. Sm. Fl. Graeca 1: 44, t. 59, 1806; Birdwood, 30.

P. isachne Roth. Nov. Pl. Sp. 54, 1821; Cooke 2: 931 (3: 448).

This species is reported here on authority of Birdwood. We have not seen any authentic specimen from Mahabaleshwar.

VERN. NAMES: Shimpi, Wag-hast (Birdwood).

2. **Brachiaria reptans** (Linn.) Gard. et C. E. Hubb. in Hook. Icon. Pl. sub. 3363, 1938; Bor, 285.

Panicum reptans Linn. Syst. Nat. (ed. 10) 870, 1759.

P. prostratum Lamk. Tab. Encycl. Meth. Bot. 1: 171, 1791; Cooke, 652 & 932 (3: 448); Birdwood, 30.

This species also reported from Mahabaleshwar by Birdwood. We have not seen any authentic specimen from Mahabaleshwar.

Capillipedium Stapf

1. Culms weak, decumbent and trailing, much geniculately branched *C. filiculme*
1. Culms erect, robust, simple or branched 2
2. Nodes glabrous or shortly hairy; callus shortly bearded; panicles often somewhat open *C. assimile*
2. Nodes densely bearded; callus villously bearded; panicles contracted *C. hugellii*

1. **Capillipedium assimile** (Steud.) A. Camus in Lemonte, Fl. Gen. de l'Indo-Cine 7: 314, 1922; Bor 110.

Andropogon assimilis Steud. in Zll. Syst. Verz. 58, 1854; Cooke, 2: 981 (3: 501).

Common and gregarious woody grass on hill-slopes along road-sides.

DISTRIBUTION: Pratapgadh Road.

FLOWERS: November.

2. **Capillipedium filiculme** (Hook. f.) Stapf, in Hook. Icon. Pl. Sub. tab. 3085, 1922; Blatter & McCann, 821; Bor, 111.

Andropogon filiculmis Hook. f., FBI 7: 181, 1896; Cooke, 2: 982 (3: 502).

Weak trailing grass usually found among the bushes, producing long stilt roots from nodes.

FLOWERS: November.

3. **Capillipedium hugellii** (Hach.) A. Camus, Rev. Bot. Appl. 1(4): 306, 1921; Blatter & McCann, 81, t. 52; Bor, 111.

Andropogon hugellii Hack. in DC. Mon. 6: 492, 1889; Cooke, 2: 892 (3: 501).

A. foetidus Donna Lisboa ex Lisboa, J. Bombay nat. Hist. Soc. 6: 205, 1891.

Common grass on hill slopes and along the margins of forests all over. Inflorescence when crushed emits strong smell very often inducing headache.

FLOWERS: July-October.

4. **Capillipedium parviflorus** (R. Br.) Stapf in Prain, Fl. Trop. Africa 9: 169, 1917; Bor, 112.

Holcus parviflorus R. Br. Prodr. 199, 1810.

There is one specimen of this species in Blatter Herbarium collected by L. J. Sedgwick from Mahabaleshwar except which it is confined to Northern India only.

Chionachne R. Br.

1. **Chionachne koenigii** (Spreng.) Thw. Enum. Pl. Zeyl. 357, 1864; Bor, 262.

Coix koenigii Spreng. Syst. 1: 239, 1825.

This species is known from a single collection from Fitzgerald ghat collected by Charles McCann (3599).

FLOWERS: September-October.

Chloris Sw.

1. **Chloris barbata** Sw. Fl. Ind. Occ. 1: 200, 1797; Birdwood, 31; Cooke 2: 2: 1035 (3: 557); Bor, 465.

This species is reported here on authority of Birdwood. We have not seen any specimen of this species, from Mahabaleshwar.

VERN. NAME: Goshya (Birdwood).

Chrysopogon Trin.

1. **Chrysopogon aciculatus** (Retz.) Trin., Fund. Agrost. 188, 1820; Bor, 115.

Andropogon aciculatus Retz., Obs. Bot. 5: 22, 1789; Cooke 2: 984 (3: 504).

Common grass in pastures in plains. Known from only one collection from Mahabaleshwar.
FLOWERS: October.

Coelachne R. Br.

1. Plants less than 10 cm tall, erect *C. minuta*
1. Plants more than 20 cm tall, spreading
..... *C. simpliciuscula*

1. ***Coelachne minuta*** Bor, in Journ. Bombay nat. Hist. Soc. 58: 1317, 1961.

Rare species in moist water-logged places, which is described from Mahabaleshwar as its type locality.

FLOWERS: August-November.

2. ***Coelachne simpliciuscula*** (Wt. et Arn.) Munro ex Benth. in J. Linn. Soc. (Bot.) 19: 93, 1881; Bor, 576.

Panicum simpliciusculum Wt. et Arn. ex Steud. Syn. Pl. Glum. 1: 96, 1854.

C. pulchella Hook. f. Fl. Brit. India, 7: 270, 1896 (non R. Br. 1810).

A very variable species growing in marshy places. It is quite common in open grasslands during monsoon when water is abundant.

FLOWERS: December-January.

Coix Linn.

1. ***Coix lachryma-jobi*** Linn. Sp. Pl. 972, 1753; FBI 7: 100; Cooke 2: 997 (3: 517); Blatter & McCann 3, t. 1; Bor, 264.

C. lachryma Linn. Syst. (ed. 10) 1261, 1759; Birdwood, 30.

This species is included here on authority of Birdwood.

VERN. NAMES: Kasai, Ran-maka (Birdwood).

Cymbopogon Spreng.

1. ***Cymbopogon martinii*** (Roxb.) Wats, in Atkins, Gaze. N.W. Prov. India, 392 1882;

Blatter & McCann, 104; Bor, 129.

Andropogon martinii Roxb. Fl. Ind. 1: 280, 1820.

A. shoenanthus Birdwood, Catalogue Pl. Matheran and Mahabaleshwar, 30, 1897 (non Linn. 1753); Cooke, 2: 991 (3: 511).

Common grass in open grass-lands. The grass contains geraniol and has strong odour. Oil expressed from this grass is known as Palmarosa oil.

FLOWERS: October-December.

Cynodon Rich.

1. ***Cynodon dactylon*** (Linn.) Pers. Syn. Pl. 1: 85, 1805; Cooke, 652 (3: 554); Birdwood, 31; Blatter & McCann, 250, t. 166; Bor, 469, f. 52.

Panicum dactylon Linn. Sp. Pl. 58, 1753; Graham, 236.

Common and abundant grass all over which forms the natural lawns in open grass-lands. It is a sacred grass for local people and used in worship of deities.

FLOWERS: Throughout the year.

VERN. NAMES: Hariyali, Darb, Durva.

Cyrtococcum Stapf

1. ***Cyrtococcum oxyphyllum*** (Steud.) Stapf, in Hook., Ic. Pl. sub tab. 3096, 1922; Bor, 291.

Panicum oxyphyllum Steud., Syb. Pl. Glum. 1: 65, 1854.

A rare grass in damp shady places in forests among the undergrowth.

FLOWERS: October.

Dendrocalamus Nees

1. ***Dendrocalamus strictus*** Nees, in Linnaea, 9: 476, 1834; Cooke 2: 1049 (3: 570); Birdwood, 31.

Rarely cultivated bamboo with solid culms.

Diandrochloa de Winter

1. ***Diandrochloa japonica*** (Thunb.) Henry, in Bull. Bot. Surv. India, 9 (1-4): 290, 1967.

Poa japonica Thunb. Fl. Jap. 51, 1784.

Eragrostis interrupta Cooke Fl. Bombay Pres. 2: 1024 (3: 546), 1908; Blatter & McCann, Bombay Grasses, 233, 1935 (non Beauv. 1812).

E. japonica (Thunb.) Trin. in Mem. Acad. Sci. Petusb. Ser. 6, 1: 405, 1831; Bor, 509.

Rare grass in grass-lands.

FLOWERS: August.

Dichanthium Willemet

1. ***Dichanthium caricosum*** (Linn.) A. Camus, in Bull. Mus. Hist. Nat. Paris, 27: 549, 1921; Bor, 134.

Andropogon caricosum Linn. Sp. Pl. ed 2, 1480, 1763; Cooke 2: 987 (3: 507).

Gregarious plant in grass-lands and along road-sides.

FLOWERS: October-November.

Digitaria Heist. ex Fabr.

1. Hairs on the spikelets verrucose .. *D. longiflora*
1. Hairs on the spikelets not verrucose 2
2. Hairs on the spikelets clavate or absent 3
3. Spikelets less than 1.25 mm long
..... *D. stricta*
3. Spikelets more than 2.25 mm long
..... *D. ternata*
2. Hairs on the spikelets not clavate .. *D. ciliaris*

1. ***Digitaria ciliaris*** (Retz.) Koel. Desr. Gram. Gatha et Germania 27, 1802.

Panicum ciliare Retz. Obz. 4: 16, 1786.

P. adscendens H.B.K. Nov. Gen. et Sp. Pl. 1: 97, 1816.

D. adscendens (H.B.K.) Henr. in Blumea 1: 92, 1934.

D. marginata var. *fimbriata* (Link.) Stapf, Fl. Trop. Africa, 9: 440, 1919; Blatter & McCann, 125, t 78.

D. sanguinalis var. *ciliaris* Prain, Beng. Pl. 1181, 1903; Cooke, 2: 940 (3: 457).

An ascending grass common and abundant all over.

FLOWERS: September-November.

2. ***Digitaria longiflora*** (Retz.) Pers., Syn. Plant. 1: 85, 1805; Cooke, 2: 941 (3: 458); Blatter & McCann, 127, t. 81; Bor, 302.

Paspalum longiflorum Retz. Obs. Bot. 4: 15, 1786.
Rare grass on rocky grounds near Wilson point.

FLOWERS: August.

3. ***Digitaria stricta*** Roth ex Roem. et Schult., Syst. Veg. 2: 474, 1817; Bor, 305.

Agrostis pilosa Retz., obs Bot. 6: 22, 1791 (non *Digitaria pilosa* Pieri in Ionios Anthol 2: 464, 1834).

D. royleana (Nees) Prain, Beng. Pl. 1181, 1903; Cooke, 2: 942 (3: 459); Blatter & McCann, 127, t. 82.

Paspalum royleana Nees ex Thum. Enum. Pl. Zeyl. 358, 1864. (non. nud) ex Hook. f., in Fl. Brit. India 7: 18, 1869.

Quite common grass in moist places and along water course.

FLOWERS: November-December.

4. ***Digitaria ternata*** (A. Rich.) Stapf ex Dyer, Fl. Cap. 7: 376, 1898; Cooke, 2: 940 (3: 457); Bor, 306.

Cynodon ternatus A. Rich. Tent. Fl. Abyse. 2: 405, 1851.

A rare species near Lingmala.

FLOWERS: September.

Dimeria R. Br.

1. Spikelets 1.5-2.5 mm. long; anthers 0.5 mm. long *D. ornithopoda*

1. Spikelets 2.5-3 mm long; anthers 1.5 mm long *D. ornithopoda* var. *megalantha*

1. ***Dimeria ornithopoda*** Trin., Fund. Agrost. 167, t. 14, 1820; Cooke 2: 945 (3: 462); Blatter & McCann, 8, t. 4; Puri & Mahajan, 135; Bor 144.

D. filiformis (Roxb.) Hochst. ex Miq. in Verh. Noderl Inst. 3(4): 35, 1851.

Andropogon filiformis Roxb. Fl. Ind. 1: 260, 1820 (non Pers. 1805).

Psilostachys filiformis Dalz. et Gibs. Bombay Fl. 305, 1861.

Common grass in drying rice-fields. Dr. Bor (l.c.) has interchanged the distribution of var. *hasiana* and the typical variety.

FLOWERS: October-December.

2. **Dimeria ornithopoda** var. **megalentha** Bor,
in Kew Bull. 1952: 576, 1952; Bor, 144.

D. ornithopoda var. *tenera* Birdwood, Cat. Pl.
Matheran and Mahabaleshwar, 30, 1897 (nomen).

Common grass in drying rice-fields and in
partially wet ground.

FLOWERS: October-November.

Echinochloa P. Beauv.

1. **Echinochloa colonum** (Linn.) Link, Hort.
Berol. 2: 209, 1833; Blatter & McCann, 148,
t. 94; Bor, 308, f. 34.

Panicum colonum Linn. Syst. Nat. ed 10, 2: 870,
1759; Birdwood, 30; Cooke, 2: 931 (3: 477).

Very common and abundant species in wet-
lands, along margins of water-courses and in
rice-fields.

FLOWERS: July-October.

VERN NAMES: Rovar, Savank, Harund.

Eleusine Gaertn.

1. **Eleusine coracana** (Linn.) Gaertn., Fruct.
1: 8, t. 1, f. 11, 1789; Graham, 235; Dalzell
& Gibson, suppl. 97; Birdwood, 31; Cooke,
2: 1039 (3: 561); Blatter & McCann, 260, t.
173; Bor, 492.

Cynosurus coracana Linn. Syst. Nat. ed 10, 2: 875,
1759.

Quite commonly cultivated on sloping
grounds. Very often shifting farming method
is used for this species and large forest areas
are destroyed for creating space for cultiva-
tion of crop.

FLOWERS: October.

VERN. NAMES: Nachni, Nagli, Ragi.

Eragrostis P. Beauv.

1. Rhachis fragile; spikelets breaking up from above
downwards *E. ciliaris*
1. Rhachis tough; spikelets breaking up from below
upwards 2
2. Annuals *E. unioloides*
2. Perennials 3

3. Spikelets fascicled or shortly pedicellate in
narrow racemes *E. chariis*
3. Spikelets not fascicled; long pedicellate ..
..... *E. tenuifolia*

1. **Eragrostis chariis** (Schult.) Hitch. in Lin-
goan Sci. J. 7: 193, 1931.

Poa chariis Schult. Mant. 2: 314, 1824.

E. gangetica Cooke, 2: 1025 (3: 547); Blatter &
McCann, 236 (non Steud. 1854).

E. nutans (Retz.) Nees ex Steud., Nom. Bot. ed
2, 563, 1840; Bor, Grass. India, Burma Ceylone, 511,
1960. (non Nees ex Wight 1833); Bor, 511.

Poa nutans Retz. Obs. Bot. 4: 19, 1786.

A common species on wet ground and on
margins of tanks and streams.

FLOWERS: November.

2. **Eragrostis ciliaris** (Linn.) R. Br., in Tuckey,
Narr. Exp. Congo, App. 478, 1818; Cooke
2: 1022 (3: 545); Birdwood, 31; Bor, 506.

Poa ciliaris Linn. Syst. Nat. ed. 10, 2: 875, 1759.

This species is included here on the autho-
rity of Birdwood.

VERN. NAME: Undir Punjo.

3. **Eragrostis tenuifolia** Hochst. ex Steud. Syn.
Pl. Glum. 1: 268, 1854; Cooke, 2: 1027 (3:
549); Bor, 514.

Poa tenuifolia A. Rich., Tent. Fl. Abyss. 2: 425,
1851.

Rare species, collected from Bhilar Estate.

FLOWERS: October.

4. **Eragrostis unioloides** (Retz.) Nees ex Steud.
Syn. Pl. Glume 1: 264, 1854; Cooke, 264,
1885; Birdwood, 31; Blatter & McCann, 235,
t. 156; Bor, 515.

Poa unioloides Retz. Obs. Bot. 5: 19, 1789; Gra-
ham, 230.

E. amabilis Wt. & Arn. ex Nees in Hook. & Arn.
Bot. Beech Voy. 251, 1830-41; Cooke, 2: 1025 (3:
546).

Very common grass all over Mahabaleshwar.

DISTRIBUTION: Chinaman's Falls, Lodwick
point, Fitzgerald Ghat, Bhilar.

FLOWERS: September-November.

Eulalia Kunth

1. ***Eulalia trispicata*** (Schult.) Henr. in Blumea 3: 453, 1940; Bor, 157.

Andropogon trispicatus Schult., Syst. Veg. 2: Mant. 452, 1824.

A. tristachyus Roxb. Fl. Ind. 1: 261, 1820 (non H.B.K., 1816).

E. argentea Brongn. in Duperr., Voy. Coquille Bot. 2(2): 92, 1830.

Pollinia argentea Trin. Bull. Sc. Acad. Petersb. 1: 71, 1836; Cooke, 2: 950 (3: 467).

Common grass in open grass-lands.

FLOWERS: October-December.

Garnotia Brongn.

1. ***Garnotia arborum*** Stapf ex Cooke, Fl. Bombay Pres. 2: 1013, 1908; Blatter & McCann, 206, t. 135; Bor, 567.

This species is found epiphytic on trees or lithophytic on rocks and also seen growing on embankments and on roof-tiles.

FLOWERS: September-October.

Hackelochloa O. Kuntze

1. ***Hackelochloa granularis*** (Linn.) O Kuntze, Rev. Gen. Pl. 776, 1891; Bor, 159.

Manisuris granularis Linn. f. Nov. Gram. Gen. 40, 1779; Birdwood, 30; Cooke, 2: 955 (3: 473).

Cenchrus granularis Linn. Mant. 2 (Append.): 575, 1771.

Rare species in open grass-lands.

FLOWERS: September-October.

VERN. NAME: Kanjani (Birdwood).

Heteropogon Pers.

1. Margins of the lower glume of pedicellate spikelets equally winged, the keels studded with long yellow bristles; ligule of several narrow membranous segments; annual *H. ritchiei*

1. Margins of the lower glume of pedicellate spikelets unequally winged, the keels not studded with bristles; ligule truncate, ciliate; perennial *H. contortus*

1. ***Heteropogon contortus*** (Linn.) P. Beauv. ex Roem. et Schult. Syst. Veg. 2: 836, 1817;

Birdwood, 30; Blatter & McCann, 109, t. 71; Bor, 163, f. 6.

Andropogon contortus Linn. Sp. Pl. 1043, 1753; Cooke, 2: 990 (3: 510).

Common grass all over in open grass-lands. The sharp twisted awns of this grass stick in the garments and sometimes in the flesh of people as well as animals causing serious trouble.

FLOWERS: September-October.

VERN. NAMES: Kusal, Pandhri Sukal.

2. ***Heteropogon ritchiei*** (Hook. f.) Blatter & McCann, in Journ. Bombay nat. Hist. Soc. 32: 623, 1928 & Bombay Grass, 108, t. 70; Bor, 165.

Andropogon ritchiei Hook. f., in Fl. Brit. India, 7: 201, 1896; Cooke, 2: 990 (3: 509).

Rare grass in grass-lands.

FLOWERS: October.

Hordeum Linn.

1. ***Hordeum hexastichon*** Linn. Sp. Pl. 85, 1753; Graham, 234; Dalz. & Gibs. suppl. 96.

H. vulgare var. *hexastichon* Aitch. Cat. Pb. & Sind, Pl. 171, 1869; Cooke, 2: 1052 (3: 575).

Rarely cultivated in fields for grains.

LOCAL NAME: Satu, Jau.

Indochloa Bor

1. Culms glabrous below the inflorescence; pedicelled and neuter spikelets reddish-brown when dry *I. clarkei*

1. Culms pilose below the inflorescence; pedicelled and neuter spikelets usually greenish *I. oligantha*

1. ***Indochloa clarkei*** (Hack.) Bor, in Kew Bull. 1954; 76, 1954 & 171; Hemadri, in Indian Forester, 94: 811, 1968.

Andropogon clarkei Hack. in Ost. Bot. z 41, 49, 1891.

Rare grass along Fitzgerald ghat and on Lingmala Plateau.

FLOWERS: October.

2. **Indochloa oligantha** (Hochst.) Bor, in Kew Bull. 1954; 79, 1954 & 171.

Andropogon oliganthus Hochst. ex Steud., Syn. Pl. Glume 1: 368, 1854.

Heteropogon oliganthus (Hochst.) Blatter & McCann, in J. Bombay nat. Hist. Soc. 32: 623, 1928.

Rare, very aromatic grass on Lodwick point. Scent of the plant is due to very volatile component of the constituents of the plant because the dry herbarium specimens are completely odourless.

FLOWERS: October.

Isachne R. Br.

1. Spikelets less than 1.5 mm long *I. gracilis*
1. Spikelets more than 1.5 mm long 2
2. Florets equal in size and of same texture ... 3
3. Glumes setosely hirsute all over
..... *I. lisboae*
3. Glumes glabrous, at least in lower half .. 4
4. Plants erect; culms slender; florets hemispherical *I. elegans*
4. Plants wiry climbers; culms woody; florets barge shaped *I. anglandei*
2. Florets unequal in size and of different texture 5
5. Lower and upper lemmas obtuse 6
6. Panicle lax *I. globosa*
6. Panicles dense *I. dispar*
5. Lower and upper lemmas apiculate or at least acute *I. miliacea*

1. **Isachne anglandei** C.E.C. Fisher, in Kew Bull. 1932: 323, 1932; Bor, 579.

Rare grass on moist ground.

FLOWERS: November.

2. **Isachne dispar** Trin., Sp. Gram. 1: t. 86, 1828; Bor, 580.

Rare, but gregarious species found in swampy places.

FLOWERS: September-October.

3. **Isachne elegans** Dalzell, in Dalz. & Gibs. Bombay Fl. 291, 1861; Cooke, 2: 923 (3: 439); Blatter & McCann, 187, t. 121; Bor, 580.

Quite common grass in wet rice-fields and along the margins of water-courses. According to Dr. Bor, Woodrow's specimens quoted as this species belong to *I. globosa* and *I. miliacea*.

FLOWERS: September.

VERN. NAME: Dunda.

4. **Isachne globosa** (Thunb.) O. Ktze., Rev. Gen. Pl. 2: 778, 1891; Bor, 580.

Milium globosum Thunb. Fl. Jap. 49, 1784.

I. australis R. Br. Prodr. 196, 1810; Cooke, 2: 923 (3: 439); Puri & Mahajan, 135.

Common and abundant grass in rice-fields and along water-courses. It is a troublesome weed in rice-fields.

FLOWERS: October.

VERN. NAME: Daura.

5. **Isachne gracilis** C. E. Hubbard, in Kew Bull. 1927: 77, 1927; Bor, 581.

Rare species along forest margins with thin membranaceous leaves growing in shady places.

FLOWERS: October-December.

6. **Isachne lisboae** Hook. f., in Fl. Brit. India, 7: 22, 1896; Birdwood, 30; Cooke, 2: 922 (3: 438); Blatter & McCann, 187; Puri & Mahajan, 135; Bor, 581.

Common stoloniferous grass in swampy places and along water-courses.

DISTRIBUTION: Wilson point, Lodwick point, Lingmala, Yenna lake.

FLOWERS: September-October.

7. **Isachne miliacea** Roth, Nov. Pl. Sp. 58, 1821; Cooke, 2: 923 (3: 439); Bor, 382.

Common along water courses and in stagnant swampy places.

FLOWERS: October.

Ischaemum Linn.

1. Margins of the lower glume of the sessile spikelets expanded below the middle 2

2. Keel of the upper glume of the sessile spikelet winged above the middle *I. indicum*
2. Keel of the upper glume of sessile spikelet not winged above the middle *I. timorense*
1. Margins of the lower glume of sessile spikelets narrowly and evenly inturned from base to apex 3
3. Base of the lower leaves acute, rounded or shallowly cordate, without a petiole 4
4. Pedicel of the pedicelled spikelet more than one third the length of the sessile spikelet *I. diplopogon*
4. Pedicel of the pedicelled spikelet less than one-third of the length of the sessile spikelet *I. imbricatum*
3. Base of the lower leaves sagittate or deeply cordate, with distinct petiole 5
5. Pedicels of the pedicelled spikelets longer than one third of the length of the sessile spikelets *I. impressum*
5. Pedicels of the pedicelled spikelets less than one-third of the sessile spikelets *I. semisagittatum*

1. ***Ischaemum diplopogon*** Hook. f., Fl. Brit. India, 7: 129, 1896; Cooke, 2: 960 (3: 478); Blatter & McCann 14, t. 8; Puri & Mahajan, 135; Bor, 178.

Common and abundant grass along water-courses, especially near water-falls, growing on wet rocks.

DISTRIBUTION: Fitzgerald Ghat, Bhilar.

FLOWERS: October-December.

2. ***Ischaemum impressum*** Hack., in DC. Monogr. 6: 210, 1889; Blatter & McCann 17; Puri & Mahajan, 135; Bor, 180.

Quite comon grass in open grass-lands and along the forest paths.

DISTRIBUTION: Bhilar, Dhobi's falls, Wilson point.

FLOWERS: September-November.

3. ***Ischaemum imbricatum*** (Hack.) Stapf, ex Ridley, Fl. Malay Pen. 5: 200, 1925.

I. goebelii Hack. in Ost. Bot. z. 51: 149, 1901; Bor, 179.

Meoschicon imbricatum Munro ex Hack. DC., Monogr. Phan. 6: 203, 1889.

Rare grass at Mahabaleshwar. Only known from a single collection (W. A. Talbot — 4534).

FLOWERS: October.

4. ***Ischaemum indicum*** (Houtt.) Merrill, in J. Arb. Arbor. 19: 320, 1930; Bor, 180.

Phleum indicum Houtt. Nat. Hist. II, 13: 198, t. 90, f. 2, 1782.

I. aristatum auct. (non Linn. 1753); Cooke, Fl. Bombay Press. 2: 958, 1908.

Common and abundant grass all over in open grass-lands.

FLOWERS: September-November.

5. ***Ischaemum semisagittatum*** Roxb. Fl. Ind. 1: 322, 1820; Cooke, 2: 961 (3: 479); Blatter & McCann, 15; Bor, 185.

I. cenjugatum Roxb. Fl. Ind. 1: 323, 1820; Bird-wood, 30.

Common and abundant gregarious grass generally found in shady places.

FLOWERS: November.

6. ***Ischaemum timorense*** Kunth. Rev. Gram. 1: 369, t. 98, 1830; Blatter & McCann, 19; Bor, 185.

A common grass generally found in shades of small bushy shrubs. It assumes scandent habit and flowering spikes protrude above the host plant.

FLOWERS: October-November.

Iseilema Anders.

1. ***Iseilema laxum*** Hack., in DC. Monogr. Phan. 6: 682, 1889; Blatter & McCann, 113; Bor, 188.

Quite common scandent grass in shady places.

FLOWERS: November.

Jansenella Bor

1. ***Jansenella griffithiana*** (C. Muell.) Bor, in Kew Bull. 1955: 98, 195; Bor, 426.

Dantheonia griffithiana C. Muell. in Bot. Z. 14: 347, 1856.

Arundinella avenacea Munro ex Thw., Enum. Pl. Zeyl. 362, 1864; Birdwood, 30; Cooke, 2: 1000 (3: 520); Blatter & McCann, 191, t. 124; Puri & Mahajan, 136.

A. campbelliana Lisboa in J. Bombay nat. Hist. Soc. 5: 346, 1891.

A common grass in moist places as well as in rocky situations all over Mahabaleshwar. Also found in open grasslands.

DISTRIBUTION: Dhobi's falls, Chinaman's falls, Petite Road, Lodwick point and Bhilar.

Manisuris L.

1. Lower glume of sessile spikelet not awned *M. clarkei*
1. Lower glume of sessile spikelet awned 2
 2. Awns long; lower glume decorated with transverse rows of exaggerated tubercles or hooks, the latter sometimes bearded at the tips *M. forficulata*
 2. Awns short, not much longer than the wings; surface of the lower glume without tubercles or hooks, softly hirsute with white hairs *M. forficulata* var. *hirsuta*

1. *Manisuris clarkei* (Hack.) Bor apud Santapau in Rec. Bot. Surv. Ind. 16(1): 357, 1953; Fl. Khandala (ed. 3) 316, 1967.

Rottboellia clarkei Hack. in Oest. Bot. Z. 41: 8, 1891; FBI 7: 156; Cooke, 2: 954 (3: 472).

Coelorhachis clarkei Blatt. & McCann in Journ. Bombay nat. Hist. Soc. 32: 33, 1927 & Bombay Grass. 41, t. 29.

Rare grass in open grass-lands.

FLOWERS: October.

2. *Manisuris forficulata* Fisher in Kew Bull. 1933: 355, 1933; Bor 192; Santapau, Fl. Khand. (ed. 3) 316, 1967.

Glyphochloa forficulata (Fisher) Clayton in Kew Bull. 35(4): 815, 1981.

Rottboellia divergens Lisboa, Bombay Grass. 57, 1896; Birdwood, 30; Cooke. 2: 952 (3: 470) (non Hack. 1889).

Peltophorus divergens Blatter & McCann, Grass. 34, t. 23, 1935 (non A. Camus, 1921); Puri & Mahajan 30.

Common and abundant grass in open grasslands, especially in hard rocky grounds.

DISTRIBUTION: Lodwick point, Wilson point.

FLOWERS: October.

3. *Manisuris forficulata* var. *hirsuta* C.E.C. Fisher, in Kew Bull. 1933: 357, 1933; Bor, 192.

There is only one specimen of this variety in Blatter Herbarium from Mahabaleshwar. The specimen is mounted on same sheet as that *M. forficulata* and has same external appearance. But on close examination it was found that it is not the typical variety. Dr. S. K. Jain has transferred var. *hirsuta* C.E.C. Fisher to *M. divergens* Hack. we feel sure on the bases of the above mentioned specimen that the variety is more allied to *M. forficulata* Fisher than *M. divergens* Hack.

Ophiurus Gaertn. f.

1. *Ophiurus corymbosus* Gaertn. f., Fruct. 3: 4, t. 181, 1805; Birdwood, 30; Cooke 2: 951 (3: 468).

Rottboellia exaltata (auct. non Linn. f.) Bor, Grasses Burma, Ceylon, India and Pakistan, 206, 1960.

This species is reported by Birdwood from Mahabaleshwar.

Oplismenus P. Beauv.

1. *Oplismenus compositus* (Linn.) P. Beauv., Ess. Agrest. 54 168-9, 1812; Birdwood, 30; Cooke, 2: 917 (3: 442); Blatter & McCann, 152, t. 96; Bor, 317.

Panicum compositus Linn. Sp. Pl. 57, 1753.

Common and gregarious among the undergrowths along the margins of the forests as well as in deeply shaded forests.

DISTRIBUTION: Fitzgerald Ghat.

FLOWERS: October.

Oryza Linn.

1. *Oryza sativa* Linn. Sp. Pl. 333, 1753; Bird-

wood, 30; Cooke, 2: 1043 (3: 565); Santapau, 312, 1953; Bor, 605.

Oryza rufipogon Griff, Netul. 3: 5, 1851; Bor, 605.

Quite common near rice-fields in abandoned plots and on sides of marshy land. Cultivated rice crop or paddy. Major food of inhabitants of Mahabaleshwar.

FLOWERS: August-September.

Oxytenanthera Munro

1. Spikelets 1-flowered *O. ritcheyi*

1. Spikelets 2-flowered *O. stocksii*

1. ***Oxytenanthera ritcheyi*** (Munro) Blatter & McCann in Journ. Bombay nat. Hist. Soc. 33: 773, 1929 & Bombay grasses, 284.

Bambusa ritcheyi Munro, in Trans. Linn. Soc. 26: 113, 1868.

Oxytenanthera monostigma Bedd. For. Man. in For. Sylvat. 233, 1873, et Icon Pl. Ind. Or. 56, t. 234, 1874; Cooke 2: 1048 (3: 571); Puri & Mahajan, 136.

Common small size bamboo on hill slopes along road-sides. Not seen in flower.

2. ***Oxytenanthera stocksii*** Munro, in Trans. Linn. Soc. 26: 130, 1868; Cooke 2: 1048 (3: 571); Birdwood, 31.

This species is included on the authority of Birdwood. We have not seen any reliable specimen of this species from Mahabaleshwar.

Panicum Linn.

1. Spikelets greenish *P. psilopodium*

2. Spikelets purple *P. psilopodium*
var. *coloratum*

1. ***Panicum psilopodium*** Trin. Gram. Panic. 217, 1826; Blatter & McCann. 158; Bor, 329.

Common and abundant grass in wet ground and along the margins of rice-fields and along the sides of streams.

FLOWERS: September-October.

VERN. NAME: Saga.

2. ***Panicum psilopodium*** var. ***coloratum*** Hook. f., Fl. Brit. Ind. 7: 47, 1896; Bor, 330.

Quite common grass in wet places along with its typical variety.

FLOWERS: September-October.

Paspalum Linn.

1. Spikelets small, less than 1.25 mm long 2

2. Margins of the upper glume glabrous
..... *P. canarae*
var. *canarae*

2. Margins of the upper glume fimbriate
..... *P. canarae*
var. *fimbriatum*

1. Spikelets more than 2.5 mm long
..... *P. scrobiculatum*

1. ***Paspalum canarae*** (Steud.) Veldkamp, Blumea 21(1): 72, 1973.

Panicum canarae Steud. Syn. Pl. gram. 1: 58, 1854.

Paspalum compactum auct (non — Roth. 1821); Cooke, 2: 943 (3: 460); Blatter & McCann, 138, t. 88; Puri & Mahajan, 135; Bor, 336.

P. costatum Hochst. in Herb. Hohenck. (nomen nudum); Birdwood, 30.

Quite common grass in wet places and near water-courses.

FLOWERS: August-September.

2. ***Paspalum canarae*** (Steud.) Veldkamp var. ***fimbriatum*** (Bor) Vedlk. in Blumea 21: 72, 1973.

P. compactum var. *fimbriatum* Bor, in Grasses Ind., Burm., Ceylon 336, 1960.

Quite frequent grass in wet places and in marshy land. It differs from the typical variety due to its hairy nature.

DISTRIBUTION: Lodwick point, Fitzgerald ghat.

FLOWERS: August-September.

3. ***Paspalum scrobiculatum*** Linn. Mant. Pl. 1: 29, 1767; Cooke 2: 943 (3: 460); Birdwood, 30; Bor, 340.

Rare grass found in waste-lands and in abandoned rice-fields. Very often cultivated on small scales for its grains.

FLOWERS: August-September.

Pennisetum Rich.

1. Anther-cells bearded at the apex *P. americanum*
1. Anther-cells not bearded at the apex *P. hohenackeri*

1. ***Pennisetum americanum*** (Linn.) K. Schum. in Engl. Planzens. Ost. Afr. B. 51, C. t. 4, A. B. 1895.

Holcus spicatus Linn. Syst. ed. 10, 1305, 1759; Graham, 238; Dalz. & Gibs. suppl. 99.

Panicum americanum Linn. Sp. Pl. 56, 1753.

P. typhoideum Rich. in Pers. Syn. 1: 72, 1805; Birdwood, 30; Cooke, 2: 917 (3: 432).

Quite commonly cultivated along with *Zea mays* Linn.

VERN. NAME: Bajri (Birdwood).

ENGLISH NAME: Pearl millet.

2. ***Pennisetum hohenackeri*** Hochst. ex Steud., Syn. Pl. Glum., 1: 103, 1854; Bor 344. *P. aureum* Dalz. & Gibs. Bombay Fl. 294, 1861.

P. aureum Link., Hort. Berol. 1: 215, 1827?

P. alopecuroides Steud., loc. cit. 102 (non Jacq. 1813); Cooke, 2: 414 (3: 430).

Gymnothrix cenchroides Roem. et Schultz., Syst. Veg. 2: 499, 1817 (non *Pennisetum cenchroides* Rich.)

FLOWERS: October.

VERN. NAME: Mohl.

Phalaris Linn.

1. ***Phalaris minor*** Retz. Obs. Bot. 3: 8, 1783; Bor 616.

There is only one specimen of this species in Blatter Herbarium which is collected from waste lands near market.

FLOWERS: March.

Pseudodichanthium Bor

1. ***Pseudodichanthium cookei*** (Stapf ex Cooke) Almeida comb. nov.

Pseudodichanthium serrafalcoides (Cooke at Stapf) Bor, in Ind. For. 66: 272, 1940; Bor, 204.

Andropogon serrafalcoides Cooke et Stapf., in Kew Bull. 1908: 450, 1910.

A. cookei Stapf ex Woodrow, in J. Bombay nat. Hist. Soc. 13: 438, 1898, nom nudum et Cooke, 2: 986, 1908.

Dichanthium serrafalcoides Blatter & McCann, J. Bombay nat. Hist. Soc. 32: 426, 1928; Bombay Grass, 95, t. 63.

Common grass on hill-slopes among other grasses.

FLOWERS: September-October.

Pseudosorghum A. Camus

1. ***Pseudosorghum fasciculare*** (Roxb.) A. Camus, in Bull. Mus. Hist. Nat. Paris 26: 662, 1920; Bor. 205.

Andropogon fascicularis Roxb. Fl. Ind. 1: 269, 1820 (non Thwaites 1864).

Rare grass at Mahabaleshwar. This is the first report of this species from Maharashtra. There is only one specimen collected from Lingmala. (P. V. Bole 370).

FLOWERS: October.

Rhynchelytrum Nees

1. ***Rhynchelytrum villosum*** (Parl.) Chiv. in Ann. 1st Bot. Roma 8: 310, 1908; Bor, 355.

Monochyron villosum Parl. in Hook., Niger Fl. 191, 1849.

Tricholaena wightii Arn. et Nees, in Linnaea 16: 218, 1842 (nomen nudum); Birdwood, 30; Cooke, 2: 925 (3: 441); Blatter & McCann 176-7, t. 112.

This species is included here on the authority of Puri & Mahajan. We have not seen any specimen from Mahabaleshwar.

FLOWERS: September.

VERN. NAME: Chota Kagli.

Saccharum Linn.

1. ***Saccharum officinarum*** Linn. Sp. Pl. 54,

1753; Cooke 2: 948 (3: 466); Birdwood, 30; Bor, 212.

Very rare in cultivation at Mahabaleshwar on sides of Yenna river.

LOCAL NAME: Uns.

ENGLISH NAME: Sugar-cane.

Sacciolepis Nash.

1. ***Sacciolepis indica*** (Linn.) A. Chase, in Proc. Biol. Soc. Wash. 21: 8, 1908; Bor, 357. *Aira spicata* Linn. Sp. Pl. 1: 63, 1753.

A. indica Linn. Sp. Pl. Errata, 1753 (Linnaeus changed original name because of other.

A. spicata on page 64 of Species Plantarum.

Quite common weed in rice-fields and in wet places.

FLOWERS: October.

Sehima Forsk.

1. ***Sehima nervosum*** (Rottl.) Stapf, in Prain Fl. Trop. Africa, 9: 36, 1917; Blatter & McCann, 21, t. 14; Bor, 218.

Andropogon nervosum Rottl. Apud. Willd. in Verh. Ges. Naturf. Freund. Berlin, Neue Schr. 4: 218, 1806.

Ischaemum laxum R. Br. Prodr. 205, 1810; Birdwood, 30; Cooke, 2: 964 (3: 482).

This grass is included here on the authority of Birdwood, who reports it from Mahabaleshwar.

Setaria P. Beauv.

1. Inflorescence a cylindric and dense or sometimes lobed spiciform panicle; lobes folded or flat 2

2. Upper glume as long as upper lemma; upper lemma smooth or minutely rugulose *S. italica*

2. Upper glume shorter than upper lemma; upper lemma rugose 3

3. Upper lemma coarsely rugose, slightly keeled upwards *S. glauca*

3. Upper lemma finely rugose, not keeled .. *S. pallide-fusca*

1. Inflorescence dense or rather loose, narrow or widely spreading panicle; leaves folded in fan-

fashion between the longitudinal nerves *S. plicata*

1. ***Setaria glauca*** (Linn.) P. Beauv. Ess. Agrost. 51: 169, 178, 1812; Dalz. & Gibs. 293; Cooke, 652, 1885 & 920 (3: 435); Birdwood, 30; Puri & Mahajan, 134; Bor, 360.

Panicum glaucum Linn. Sp. Pl. 56, 1753.

Rare grass at Mahabaleshwar. Very often confused with *S. pallide-fusca* (Schumch.) Stapf, but could be separated easily due to its coarsely rugose upper lemma.

FLOWERS: October.

VERN. NAME: Kolara.

2. ***Setaria italica*** (Linn.) P. Beauv., Ess. Agrost. 51: 170, 178, 1812; Cooke, 2: 921 (3: 437); Birdwood, 30; Bor, 362.

Panicum italicum Linn. Sp. Pl. 56, 1753; Graham, 237; Dalz. & Gibs. suppl. 98.

Widely cultivated species of millet. Generally grown on hard forest lands which are cleared for the purpose of cultivation just before the monsoon.

VERN. NAME: Rala.

3. ***Setaria pallide-fusca*** (Schumach.) Stapf et C. E. Hubb., in Kew Bull. 1930: 259, 1930. Bor, 363.

Panicum pallide-fusum Schmach., Besker. Guin Pl. 58, 1827.

Common grass in open grasslands. Most of the specimen of this species in Blatter Herbarium were identified as *S. glauca* (L.) P. Beau. which have been corrected by N. L. Bor.

FLOWERS: September.

4. ***Setaria plicata*** (Lamk.) T. Cooke, Fl. Bombay Pres. 2: 919, 1908 & Reprint (3: 434); Bor, 364.

Panicum plicataum Lamk. Encycl. Meth. Bot. 4: 736, 1797.

Rare grass at Mahabaleshwar.

FLOWERS: November.

Spodiopogon Trin.

1. **Spodiopogon rhizophorus** (Steud.) Pilger, in Engler & Prantl, *Naturl. Pflanzenf. Aufl.* 2, 14e: 119, 1940.

Andropogon rhizophorus Steud. Syn. Pl. Glum. 1: 381, 1855.

S. albidus Benth. in J. Linn. Soc. (Bot.) 19: 66, 1881; Cooke, 2: 947 (3: 464); Blatter & McCann, 51, t. 34; Puri & Mahajan, 135.

Quite common grass along margins of forests and along road-side in partially shaded places. It is very prominent grass due to its long petiole, and hanging leaf-blades.

DISTRIBUTION: Pratapsingh Garden, Dhobi's falls, Lingmala, Fitzgerald Ghat.

FLOWERS: September-October.

Themeda Forsk.

1. Pairs of the involucre spikelets inserted at different levels 2

2. Racemes less than 1.5 cm long *T. triandra* (p.p.)

2. Racemes much longer than 1.5 cm *T. tremula*

1. Pairs of the involucre spikelets inserted at the same level 3

3. Involucre spikelets over 6 mm long; awns upto 6 cm long *T. triandra* (p.p.)

3. Involucre spikelets less than 6 mm long; awns less than 6 cm long *T. quadrivalvis*

1. **Themeda quadrivalvis** (Linn.) O. K., Rev. Gen. Pl. 2: 794, 1891; Puri & Mahajan, 136; Bor, 252.

Anthistiria ciliata Linn. f. suppl. 113, 1781; Birdwood, 30; Cooke, 2: 994 (3: 564).

Quite robust grass, common in open grasslands. Very favourite grass of grazing animals when young.

DISTRIBUTION: Bhilar, Lodwick point.

FLOWERS: October-November.

2. **Themeda tremula** (Nees ex Steud.) Hack., DC. Monogr. Phan. 6: 667, 1889; Cooke 2: 995 (3: 515); Blatter & McCann, 119, t. 75; Bor, 254.

Anthistiria tremula Nees ex Steud. Syn. Pl. Glum. 1: 401, 1855.

Common and abundant grass in open Grasslands. Favourite grass of cattle.

FLOWERS: October-November.

3. **Themeda triandra** Fosc., Fl. Aegypt.-Arb. 123, 178, 1775; Blatter & McCann, 115, t. 74; Bor, 254.

Anthistiria ciliata Nees in Linnaea, 7: 284, 1832 (non Linn. f. 17); Graham, 239; Dalz. & Gibs. 304.

A. imberbis Retz. Obs. 3: 11, 1783.

T. imberbis (Retz.) Cooke, Fl. Bombay Pres. 2: 993, 1908 & Reprint (3: 513).

Common and abundant grass in open grasslands one of the favourite grasses of grazing cattle.

FLOWERS: October-December.

Thysanolaena Nees

1. **Thysanolaena maxima** (Roxb.) O. Kuntze, Rev. Gen. Pl. 2: 794, 1891; Bor. 650.

Agrostis maxima Roxb. Fl. Ind. 1: 319, 1820.

T. agrostis Nees, in Edinb. New Phil. J. 18: 180, 1835; Cooke 2: 1006 (3: 527).

A rare grass usually found near the vicinity of water.

FLOWERS: January-February.

LOCAL NAME: Barucha.

Triticum Linn.

1. Spikelets tomentose *T. pilosum*

1. Spikelets glabrous *T. aestivum*

1. **Triticum aestivum** Linn. Sp. Pl. 1: 85, 1753; Graham, 234; Dalz. & Gibs. suppl. 97; Bor, 679.

T. vulgare Lamk. Fl. Franc 3: 153, 1778; Vill. Hist. Pl. Dauph. 2: 153, 1787; Birdwood, 31.

Rare species in cultivation.

LOCAL NAME: Gahu.

ENGLISH NAME: Wheat.

2. **Triticum pilosum** Dalz. & Gibs. Bombay Fl. suppl. 97, 1861; Woodrow, in Journ. Bombay nat. Hist. Soc. 13: 441, 1901.

T. sativum Lam. var. *pilosum* Cooke Fl. Pres. Bombay 2: 1052 (3: 575), 1906.

Rarely cultivated for its grains.

LOCAL NAMES: Bakshi, Kala-Kusli.

Trilobachne Schenck

1. **Trilobachne cookei** (Stapf) Schenck ex Henrard, in Meded. Rij. Herb. No. 67, 4, 1931; Bor, 268.

Polytoca cookei Stapf, in Hook., Ic. Pl. t. 2333, 1894. Birdwood, 30; Cooke, 2: 998 (3: 518); Blatter & McCann, 5, t. 2.

Grows sporadically in grass-lands.

FLOWERS: September-October.

Tripogon Roem et Schult.

1. Lemmas cleft at the apex into two lobes, awned in the cleft 2
2. Median awn as long as or longer than lemma *T. pauperculus*
2. Median awn shorter than lemma or absent . . 3
3. Leaves and culms glaucous; leaves 5-20 cm long ligule present *T. jaquemontii*
3. Leaves and culms green, not glaucous; leaves 30-60 cm long; ligule absolute
- *T. lisboae*
1. Lemmas cleft at the apex into 4 lobes or with definite lobe between each lateral awn and the median *T. bromoides*

1. **Tripogon bromoides** (Roem. et Schult.) Roth. Nov. Sp. 49, 1821; Bor. 519.

Trianthera bromoides Roem. et Schult., Syst. Veg. 2: 600, 1817.

Common grass on rock faces in ghat areas along road-sides. Rejuvenating perennial grass which dries after the monsoon and re-appears in leaves in the next monsoon.

FLOWERS: September-November.

2. **Tripogon jaquemontii** Stapf, in Kew Bull. 1892: 85, 1892; Cooke, 2: 1037 (3: 559); Blatter & McCann, 269, t. 181; Bor, 522.

Common and abundant gregarious rejuvenating grass on rock-faces in ghat areas. It is an erect grass in monsoon but hang down after monsoon is over.

FLOWERS: October-November.

3. **Tripogon lisboae** Stapf, in Kew Bull. 1892: 84, 1892; Birdwood, 30; Cooke, 2: 1036 (3: 558); Blatter & McCann, 262, t. 180; Bor, 522.

Quite common rejuvenating grass in ghat area.

FLOWERS: October-November.

4. **Tripogon pauperculus** Stapf, in Hook. l.c. Pl. t. 2442, 1896; Cooke, 2: 1036 (3: 558); Blatter & McCann, 266, t. 178; Bor, 522.

Indopoa paupercula (Stapf), Bor, Kew Bull. 1958: 255, 1958.

Common and abundant grass found on hard rocky grounds and epiphytic on tree-trunks. N. L. Bor had separated it as belonging to a distinct genus, but later in his monograph on Asiatic grasses again assigned it to the old genus *Tripogon*.

FLOWERS: October-November.

Vetiveria Lem.-Lisanc.

1. **Vetiveria zizanioides** (Linn.) Nash., in Small, Fl. South East U.S. 67, 1903.

Phalaris zizanioides Linn. Mant. Pl. 2: 183, 1771.
Andropogon squarrosus Linn. f. suppl. 433; 1781; Cooke 2: 991 (3: 511).

A. muricatus Retz. Obs. Bot. 3: 43, 1783; Birdwood, 30.

Rare grass found on bunds and margins of rice-field in large clumps. Roots of this grass have pleasant aroma and wet roots are hung in houses for producing fragrance in summer.

FLOWERS: September-October.

Zea Linn.

1. **Zea mays** Linn. Sp. Pl. 971, 1753; Birdwood, 30; Cooke 2: 991 (3: 574).

Very common in cultivation at Mahabaleshwar. Cobs of various horticultural varieties are sold to tourists near Yenna Lake, after frying and applying salt, chili and pepper powders.

LOCAL NAMES: Maka, Bhutta.

(to be continued)